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1963

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PATIENT-NURSE DEPENDENCY EXPLORATORY STUDY

Issued by the Operational Research Unit
of the Department of Health
Wellington, New Zealand

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PATIENT-NURSE DEPENDENCY EXPLORATORY STUDY

by

I. J. JEFFERY, M.SC., M.B., CH.B., (N.Z.), D.P.H. (LON.)
Assistant Director, Division of Hospitals

and

SHIRLEY M. LOWE, R.N., R.M., DIP. OF NURSING (N.Z.)
Nurse Instructor, Division of Nursing

Series.
SPECIAL REPORT No. 11

Issued by Operational Research Unit
Department of Health, Wellington
December 1963

R. E. OWEN, GOVERNMENT PRINTER, WELLINGTON
NEW ZEALAND. Dept. of Health

RA407.5
.N53
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FOREWORD

by Dr H.B. Turbott I.S.O., M.B.Ch.B., D.P.H.
Director-General of Health.

This report concerns an exploratory survey of the dependency of patients upon nursing staff. It follows a tested overseas approach to this important subject.

The survey has had a special use in showing the value of objective evaluation in a wide range of hospital subjects.

A biometric approach on an operational research basis is the only means of obtaining much fundamental hospital data.

I am pleased to record that, following the study, an operational research unit has been formed within the division of hospitals. The unit will play an important part in providing a much needed quantitative basis for logical planning.

H.B. Turbott.

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1. INTRODUCTION:

This report discusses a special exploratory survey – 'special' because it has an extraordinary as well as an orthodox purpose.

Its orthodox purpose is to facilitate a later survey and its extraordinary purpose is to show the value of a biometric approach in hospital affairs in New Zealand.

The survey deals with patient nurse dependency and uses established methods. The work of the Nuffield Provincial Hospitals Trust, the Operations Research Division of Johns Hopkins Hospital and the Oxford Regional Hospital Board has been especially helpful. The recording of dependency by day of operation follows work done at Oxford by Jeffery and Barr. (unpublished)

2. REASONS FOR THE SURVEY:

An accurate knowledge of patient nurse dependency is important because it is the only true basis for

(a) satisfactory patient care and
(b) many basic hospital administrative decisions.

In regard to (a), satisfactory patient care depends upon the use made of nursing skills and this in turn depends upon an accurate knowledge of patient disabilities and dependency.

In regard to (b), a wide range of administrative decisions can be properly made only when patient dependency is known. These decisions are concerned with such basic matters as the numbers and kinds of nurses required, their training and the work which they should do; the organisation of nursing administration and services in hospitals and the design of other services, equipment and hospital buildings.

If then this patient nurse relationship can be accurately measured, it means that data can be made available to improve the quality of patient care and to form the basis for many responsible decisions in hospital programming.

In general terms, a biometric study of hospital demand in New Zealand is the only rational approach to the problem of ensuring that only necessary strain is taken by a community which, although it is humanitarian, is also small.

The survey discussed in the report is not to be taken as significant numerically for either the place of study or hospitals generally. It is, of course, significant insofar as it demonstrates one of the methods of biometry.

3. THE SURVEY:

The survey is a patient survey which involves the nurse because of the inevitable close patient nurse contact.

The patients considered are persons who were in-patients in a 30-bed women's surgical ward during the period 24 October 1961 to 20 November 1961 inclusive. (Other surveys deal with medical and obstetric patients.)

3.1 BASIC DATA -

Two distinct sources of data were used:

(1) An assessment of patient dependency
(2) An activity sampling of nurse-patient time.

Patient dependency was assessed daily at a constant time by the nurse in charge of the ward who graded the dependency of each patient on a standard form. A copy of the form appears as Figure 1 'Daily Patient Record'. The method of recording was to tick the appropriate spaces in the daily column for items 1 to 25 and to make the relevant entry elsewhere. The dependency category shown in item 27 is 1 if the patient is ambulant, 3 if the patient is 'bedfast and completely dependent', while category 2 'other' includes those patients who fall between these two extremes.

The activity sampling of nurse patient time was made by recording the activity of the patient and any nursing time involved as observed in instantaneous observation at two minute intervals in a four-bed room. A copy of the form used appears as Figure 2 'Patient Activity in a Four-bed Room'. Only data dealing with patient activity involving a registered nurse (R), a student nurse (S) or a nurse aid (A) are discussed in this report.

4. THE PATIENTS:

The patients are 101 women who were admitted to a women's surgical ward. Of them, 78 were emergency admissions and 23 were admitted from the waiting list. The emergency admissions include four admissions from other wards. There were 26 patients in the ward at the start of the survey, 75 were admitted during the course of the survey while 18 remained in the ward at the end of the survey.

An age group distribution of the 101 patients is given in Table 1 and Figure 3 'The Ages of the Patients by Source of Admission'. The age groups have been made broad on account of the small numbers involved.

The study is concerned with patient disability and dependency rather than with pathological entities but an indication of the pathology involved is given in Table 2 'The Diseases of the Patients'.

5. THE NURSES:

The ward nursing service is given by registered nurses, student nurses and a nurse aid.

The number of nursing staff in the ward varies with the day and with the time of day.

In general terms the nurse in charge of the ward from 8.00 a.m. till 7.30 p.m. is a sister or a staff nurse. From 8.00 a.m. till 1.00 p.m. both are present. A third registered nurse assists from Monday to Friday 9.00 a.m. till 3.00 p.m. A fourth registered nurse assists on request four nights a week from 6.00 p.m. till 10.00 p.m. Usually three student nurses are present in the ward on two shifts from 7.00 a.m. till 11.00 p.m. One or two student nurses attend from 11.00 p.m. till 7.00 a.m. and are supervised by the hospital night sister. A nurse aid is present Monday to Friday from 8.30 a.m. till 3.30 p.m.

6. PATIENT NURSE DEPENDENCY:

The numbers of patients in the three dependency categories are considered by date and also in relation to the day on which the operation was performed in the case of patients having surgery. Emergency and waiting list patients are also considered separately.

6.1 DEPENDENCY BY DATE -

The relevant tables and figures are:

(a) Table 3 and Figure 4: 'Emergency Patients Having Surgery by Dependency and Date'

(b) Table 4 and Figure 5: 'Emergency Patients Not Having Surgery by Dependency and Date'

(c) Table 5 and Figure 6: 'Emergency Patients by Dependency and Date'

(d) Table 6 and Figure 7: 'Waiting List Patients Having Surgery by Dependency and Date'

(Note: The one patient admitted from the waiting list who did not have surgery is also shown in Table 6 and Figure 7.)

(e) Table 7 and Figure 8: 'All Patients by Dependency and Date'.

6.2 DEPENDENCY BY DAY OF OPERATION -

The relevant tables and figures are:

(a) Table 8: 'Patients Having Surgery by Source, Dependency and Day Referred to the Day of Operation'

(b) Figure 9: 'All Patients Having Surgery by Dependency Category and Day Referred to the Day of Operation'

(c) Figure 10: 'Histogram Showing Numbers of Patients in the Three Dependency Categories in Each Day Referred to the Day of Operation'.

7. BEDSIDE NURSING TIME:

The times spent by registered nurses, student nurses and nurse aids with patients observed in the four-bed room are given in Table 9 'Minutes of Bedside Nursing Care Given by Nurses by Dependency Category, Kind of Nurse and Hour'.

The values in the table are mean values obtained by doubling the number of observations made at two minute intervals. The observations involved 31 hours consisting of two periods of 14 hours extending from 7.00 a.m. to 9.00 p.m. and one period of three hours extending from 7.00 a.m. to 10.00 a.m. Seven patients were observed of whom two were ambulent (category 1) two were bedfast and completely dependent (category 3) and three were in dependency category 2 (other).

Since the table is given merely to show a method, standard errors of themeans have not been calculated.

Data from Table 8 are used in the following figures:-

(a) Figure 11: 'Minutes of Bedside Nursing Care Given by Nurses to Dependency Category 1 Patients by Kind of Nurse and Hour'

(b) Figure 12: 'Minutes of Bedside Nursing Care Given by Nurses to Dependency Category 2 Patients by Kind of Nurse and Hour'

(c) Figure 13: 'Minutes of Bedside Nursing Care Given by Nurses to Dependency Category 3 Patients by Kind of Nurse and Hour'

8. DISCUSSION:

8.1 BASIC DATA -

8.11 PATIENT DEPENDENCY FORM -

(a) Suitability of Form:

The form resembles that used by Johns Hopkins Hospital, Baltimore, and the Oxford Regional Hospital Board. It is suitable for use in a limited survey but the format should be reviewed to assist punch card analysis in a large survey.

(b) Age of Patient:

It was intended to record the ages of patients. This was done by writing the age in the space below 'Date Admitted'. Forms used in future surveys should have this provision.

(c) Source of Admission:

The word 'State' could profitably be added after 'Other'.

(d) Data on Admission:

Close liaison is needed with admitting officers so that all necessary data is entered on hospital forms when a patient is admitted. Full entries at this point save much searching for a few items of information later.

(e) Provisional Diagnoses:

Wherever possible a provisional diagnosis should appear on a medical practitioner's request for admission. The stating of a symptom rather than a provisional diagnosis in some cases sugests that a study of admission requests could well be of interest generally to hospital clinical societies.

A number of different nomenclatures is adopted for what are apparently the same clinical entities. There should be more uniformity.

(f) Disposal:

Disposal data *viz.* 'Discharged', 'Died' and 'Other (state)' would also provide useful data in a large survey.

(g) Time of Making Entries:

Care is required to ensure that entries are made at the correct time. If necessary the nurse in charge of the ward should be assisted to make the entries. It is important that this work should not become a burden otherwise the accuracy will be in doubt.

(h) Other Comments:

All staff making entries on the forms should be carefully briefed. Relieving staff should have the same approach as the permanent staff particularly in regard to assessing nursing dependency categories. Simultaneous briefing of all staff would appear profitable.

8.12 ACTIVITY SAMPLING FORM -

(a) Suitability of Form:

The form which again resembles one used by the Oxford Regional Hospital Board is suitable for use in New Zealand hospitals. The form can be used for other purposes e.g. it can supply data to test the use being made of a single or multiple bed room or to indicate the extent to which the patient's day is occupied by any given activity or spent with any particular class of staff. In this survey the form was used for analysing activities involving the patient and registered nurses, student nurses and nurse aids.

(b) Practicability of Making Entries:

It was found that two minute observations were readily made. A quick glance around the room gave 'instantaneous' records of the activities of all patients and the purpose of any given action once noted was readily confirmed or ascertained in the time available before the next observation was due. In some overseas surveys five minute observations weremade but in this particular survey the numbers of observations would have been too small and too many activities would have been missed if more widely spaced observations had been made. If the activities can be placed into a sufficiently small number of groups, observers in future surveys can use a wider interval between observations.

8.2 THE PATIENTS -

In this study all the patients are women. This is unimportant where it is desired merely to demonstrate a method but further surveys will involve both sexes.

The age groups adopted are broad only because the numbers of patients are small. In further studies the standard five yearly age groups and narrow neo-natal age groups will be used.

In a large survey the 'Other' source of admission and disposal will give interesting information on the part played by private hospitals and homes for the aged.

8.3 THE NURSES -

The arrangement of the nursing service in the ward follows a widespread pattern.

The data relating to patient dependency and nurse activity show that it is timely to re-examine the basis for the present organisation and management of hospital ward nursing and services. Among subjects which must be studied in detail are:

(a) the rearrangement of ward nursing duties
(b) the allocation of nursing duties to separate grades of nursing staff
(c) the effect of nursing services organisation on nurse recruitment and training
(d) the training programme for nursing staff
(e) the liaison of hospital and domiciliary nursing services.

Such studies would assist in ensuring that nurses capable of the highest nursing skills are being used to the best purpose to provide better patient care.

In the time between starting this survey and writing the report a study of nursing activity has been commenced. The significance of nursing administration in meeting the needs of dependent patients will be fully discussed in this study.

8.4 PATIENT NURSE DEPENDENCY -

8.41 GENERAL COMMENT -

Data recorded on the daily patient record forms in a large survey will be analysed to produce a wide range of useful information. It is unprofitable to deal too much with the data of the present survey which is concerned essentially with demonstrating method. It will be noted that section 6 'Patient Nurse Dependency' segregates data by time and refers to the date and to the day of operation. Clearly an analysis of the patients by dependency and the number of hours for which they are able to be up is important in showing the kind of use made of surgical beds. This use in the pre-operation period shows the degree to which surgical patients are brought to hospital too soon or perhaps needlessly. The data in the post operation period show the extent to which proper use is made of surgical beds following surgery.

The incidence of items of special care, will show the use made of ward equipment such as suction, and oxygen equipment. A large study will show the use made by patients of bedrooms of different types e.g. single rooms, two-bed rooms and four-bed rooms and rooms such as day rooms.

As an example in more detail, the incidence of dependencies by date is now discussed.

8.42 DEPENDENCIES BY DATE -

The number of patients in each of the three dependency categories, and mean values, are given for the 28 days of the survey in Table 7 'All Patients by Dependency and Date'.

The daily number of all patients ranges from 26 to 33 and of these, least dependent patients range from 5 to 19, moderately dependent from 13 to 25 and most dependent from 1 to 6.

The number of most dependent patients in the ward is therefore small; moderately dependent patients are the predominant group and least dependent patients show the greatest variation in numbers.

8.421 Average Values:

Bedside nursing care values are considered in Section 8.5 but if the average values of Table 9 'Minutes of Bedside Nursing Care Given by Nurses by Dependency Category, Kind of Nurse and Hour', are applied to the mean numbers of daily dependencies, data are obtained as shown in Table 10 'Average Ward Daily Bedside Nursing Time by Dependency'.

The 30 patients thus receive 31.6 hours of bedside nursing care in the 14 hours. (The absence of a value for 10.00 – 11.00 a.m. in the case of Category 3 patients is disregarded.) This is equivalent to 1 hour 3 minutes per patient with all groups taken together, but in view of the large variation among the dependencies, a more accurate picture is seen by considering the dependencies separately.

Thus in the 14 hours the most dependent patients receive 8.1 hours or 25.6% of the total bedside nursing care given and the corresponding values for the moderately dependent and least dependent patients are 21.8 hours or 69.2% and 1.7 hours or 5.2% respectively. As further discussed in Section 8.5 'Bedside Nursing Time' the rate per patient for 13 hours in the case of the most dependent patient is 2 hours 1 minute and for 14 hours in the cases of moderately and least dependent patients 1 hour 17 minutes and 11 minutes, respectively.

8.422 The Range of Values:

The range of numbers of patients in the three dependency categories is shown in the tables and figures of Section 6 'Patient Nurse Dependency'. Corresponding data in a large survey may be used to state the following:

(a) the daily contributions to the ward patient load which are made by emergency admissions and admissions from the waiting list
(b) the contribution made by a ward to the load of the theatres in the hospital by surgical specialty
(c) the incidence of patients in the three dependency categories who are admitted as emergency or waiting list patients from private hospitals and homes for the aged.

The curve of the daily incidence of patients in the most dependent category shows a marked variation in the case of all Figures in Section 6 'Patient Nurse Dependency'.

An investigation should be made to determine the relationship between the number of patients in this dependency category and the number of patients who require intensive care. The incidence of items of special nursing care as an index of the number of patients requiring intensive care should also be investigated.

If the curve showing the daily numbers of patients requiring intensive care also shows a marked variation, the New Zealand experience agrees with the experience overseas (Johns Hopkins Hospital).

Any lack of correspondence in the maxima and minima of curves relating to individual wards supports the view that one intensive care unit can economically provide for all hospital patients in a prescribed group. The extent to which special medical and nursing services are required will measure the extent to which services and equipment should be provided.

8.43 THE PREDICTION OF ADMISSION -

One of the most important current fields of research in the context of this study is the prediction of admissions to the surgical wards of hospitals.

There is evidence to suggest that emergency surgical admissions to hospitals follow a recognisable pattern and that the numbers of such admissions are predictable. If this is the case, and since surgical admissions from the waiting list are able to be controlled, the number of admissions to surgical wards from both sources is predictable. Accurate forecasting of surgical admissions is a valuable administrative tool and a fruitful field for research.

8.5 BEDSIDE NURSING TIME -

The data discussed here relate to seven patients and 31 hours of observed time. A full survey must be made before values suitable for general application can be assumed with reasonable confidence.

The period of observation extends from 7.00 a.m. to 9.00 p.m. and is accepted as being the busiest period of the day. It is the period during which most of the nursing care is required and in which the greatest number of nurses are on duty. This assumption is to be tested in a full survey to note the bedside nursing care required between 9.00 p.m. and 7.00 a.m.

Only mean values are mentioned and standard errors are not given.

8.51 BEDSIDE NURSING TIME BY DEPENDENCY -

The least dependent patients receive 11 minutes of bedside nursing care in the 14 hours. In six of the hours no care is given and in the remaining eight hours the care ranges from one minute to three minutes in the hour.

The moderately dependent patients receive 1 hour 17 minutes of care in the 14 hours and the care ranges from one minute to 12 minutes in the hour.

The completely dependent patients receive 2 hours 1 minute of care in the 13 hours for which data is available and the care ranges from two minutes to 24 minutes in the hour.

8.52 BEDSIDE NURSING TIME BY KIND OF NURSE -

The times given in this section relate to 14 hours in the case of the least and moderately dependent patients and 13 hours in the case of the completely dependent patient. 'Care' is 'bedside nursing care'.

In the observed time, registered nurses give five minutes of care to the least dependent patients, 20 minutes to the moderately dependent patients and 25 minutes to the completely dependent patients. The highest rate of care is eight minutes an hour.

Student nurses give five minutes of care to the least dependent patients, 55 minutes to the moderately dependent patients and 1 hour 26 minutes to the completely dependent patients. The highest rate of care is 16 minutes in the hour.

The nurse aid gives one minute of care to the least dependent patients, two minutes to the moderately dependent patients and ten minutes to the completely dependent patients. The highest rate of care is six minutes in the hour.

8.53 GENERAL COMMENTS -

8.531 Type of Care Received:

The care received by patients is not analysed in this study. In passing it is seen that some peaks of care given by both registered nurses and student nurses are related to meal times. Other studies should analyse ward activities. The items of care given by registered nurses, student nurses and the nurse aid, point to the need for reconsidering the whole range of patient care and the best way of giving this care.

8.532 Amount of Care Received:

The amount of care given to the least dependent patients is very small. A full analysis of the amount and type of nursing needs of this group of patients should be made to assess their need for in-patient treatment.

The group of moderately dependent patients who provide a large proportion of all hospital patients, needs a careful analysis, inter alia clinical, to assess the worth of what must be in many cases a small amount of bedside care. The advantages of receiving care from their own general practitioners augmented by necessary out-patient and other services should be tested against the benefit of what must often be an insignificant amount of nursing and medical care.

The completely dependent patients should be the subject of investigation in relation to such matters as grouping patients for medical and nursing care in some form of graded care organisation. The efficient dealing with this group of patients is vital for a hospital. These are the patients for whom the more complex (and costly) services and care are needed. The outcome of their treatment makes a large contribution to the reputation of the hospital and the efficiency of hospital administration.

9. RECOMMENDATIONS:

The experience gained in this exploratory study is highlighted by the following recommendations:

9.1 BIOMETRIC STUDIES -

The biometric approach in hospital matters should be exploited.

9.2 NURSING DEPENDENCY SURVEY -

A full scale nursing dependency survey of public hospitals in New Zealand should be made.

9.3 HOSPITAL NURSING ADMINISTRATION STUDIES -

Studies should be made of public hospital nursing administration. In particular the following subjects should be studied:

(a) nursing administrative patterns
(b) the nursing needs of patients, the organisation of nursing care and assignment of patients to nurses
(c) the kinds of nursing staff which should undertake nursing care
(d) the coordination of the training of nurses with their duties.

9.4 WARD NURSING ACTIVITY STUDY -

A study of nursing activity should be made in connection with the hospital nursing administration studies.

In this study the nursing activities of all staff in hospital wards should be studied. The report should lay down a proposed pattern of work for all kinds of nursing staff.

Such a report would be invaluable when considered with the nursing dependency report in the training programmes of nurses.

9.5 STUDIES IN WARD DESIGN -

Data from the foregoing studies should be used in studies in ward design.

Other data would include:

(a) the use of rooms and services by dependency
(b) the design of wards and the organisation of patient care.

9.6 FORECASTING SURGICAL DEMAND -

The prediction of the surgical demand on public hospital beds should be studied. The data from a nursing dependency survey will be used for this purpose.

9.7 EXPERIMENTAL WARD -

An experimental ward should be established as a place of research into ward function and design.

10. SUMMARY:

1. An exploratory survey of patient nurse dependency is described.

2. The incidence of patients in three dependency categories is recorded.

3. The rate of bedside nursing time for each dependency category is given.

4. The amount of ward bedside nursing care is assessed.

5. Full scale surveys and an experimental ward for research are recommended.

11. ACKNOWLEDGMENT:

The pleasant and willing cooperation of the Medical Superintendent, Matron and staff of the hospital in which the survey was made is gratefully acknowledged.

The Department of Statistics is thanked for its assistance in the varityping of this study and the preparation of diagrams.

FIGURE 1: DAILY PATIENT RECORD

NAME:_____ NUMBER:_____

WARD:_____ DATE ADMITTED:__/__/19__. TIME ADMITTED: _____ a.m.

SEX: [M] [F] _____ p.m.

CIVIL STATE: [S] [M] OTHER:_____

OCCUPATION:_____

SOURCE OF ADMISSION: WAITING LIST [ ] EMERGENCY [ ] OTHER [ ]

NAME OF MEDICAL ATTENDANT:_____

DIAGNOSIS ON ADMISSION:_____

DIAGNOSIS ON DISCHARGE:_____

OTHER DISEASE CONTRIBUTING TO STAY IN HOSPITAL:_____

TIME ON ADMISSION TO THEATRE:_____

TIME ON RETURN TO WARD:_____

TIME DISCHARGED:_____

DATE: (Day of month only)																											
WALKS	1	Without help																									
	2	With help or in chair																									
	3	Bedfast																									
BATHS OR SHOWERS	4	Without help																									
	5	With help in bathroom																									
	6	With help at bed																									
	7	Completely dependent																									
HAS MEALS	8	Without help																									
	9	Helped with liquids																									
	10	Helped with solids																									
	11	Completely dependent																									
	12	Tube fed																									
ELIMINATION	13	Without help																									
	14	With help																									
	15	Incontinent																									
OTHER ITEMS	16	Unconscious																									
	17	Intravenous																									
	18	Oxygen																									
	19	Suction																									
	20	Blood																									
	21	Drainage																									
	22	Isolation																									
	23	Confused																									
	24	Emotionally disturbed																									
	25	Assurance above normal																									
HOURS UP	26	Hours up																									
CATEGORY	27	Nursing dependency																									

COMMENTS:

SISTER OR NURSE IN CHARGE:_____ DATE:__/__/19__.

FIGURE 2: PATIENT ACTIVITY IN A FOUR-BED ROOM

HOUR	PATIENT			PATIENT		
MIN.	NO	ACTIVITY TYPE	PRESENT ※ P.R.S.A. Do. V. Dr. O.	NO	ACTIVITY TYPE	PRESENT ※ P.R.S.A. Do. V. Dr. O.
2			P.R.S.A. Do. V. Dr. O.			P.R.S.A. Do. V. Dr. O.
4			P.R.S.A. Do. V. Dr. O.			P.R.S.A. Do. V. Dr. O.
6			P.R.S.A. Do. V. Dr. O.			P.R.S.A. Do. V. Dr. O.
8			P.R.S.A. Do. V. Dr. O.			P.R.S.A. Do. V. Dr. O.
10			P.R.S.A. Do. V. Dr. O.			P.R.S.A. Do. V. Dr. O.
12			P.R.S.A. Do. V. Dr. O.			P.R.S.A. Do. V. Dr. O.
14			P.R.S.A. Do. V. Dr. O.			P.R.S.A. Do. V. Dr. O.
16			P.R.S.A. Do. V. Dr. O.			P.R.S.A. Do. V. Dr. O.
18			P.R.S.A. Do. V. Dr. O.			P.R.S.A. Do. V. Dr. O.
20			P.R.S.A. Do. V. Dr. O.			P.R.S.A. Do. V. Dr. O.
22			P.R.S.A. Do. V. Dr. O.			P.R.S.A. Do. V. Dr. O.
24			P.R.S.A. Do. V. Dr. O.			P.R.S.A. Do. V. Dr. O.
26			P.R.S.A. Do. V. Dr. O.			P.R.S.A. Do. V. Dr. O.
28			P.R.S.A. Do. V. Dr. O.			P.R.S.A. Do. V. Dr. O.
30			P.R.S.A. Do. V. Dr. O.			P.R.S.A. Do. V. Dr. O.
32			P.R.S.A. Do. V. Dr. O.			P.R.S.A. Do. V. Dr. O.
34			P.R.S.A. Do. V. Dr. O.			P.R.S.A. Do. V. Dr. O.
36			P.R.S.A. Do. V. Dr. O.			P.R.S.A. Do. V. Dr. O.
38			P.R.S.A. Do. V. Dr. O.			P.R.S.A. Do. V. Dr. O.
40			P.R.S.A. Do. V. Dr. O.			P.R.S.A. Do. V. Dr. O.
42			P.R.S.A. Do. V. Dr. O.			P.R.S.A. Do. V. Dr. O.
44			P.R.S.A. Do. V. Dr. O.			P.R.S.A. Do. V. Dr. O.
46			P.R.S.A. Do. V. Dr. O.			P.R.S.A. Do. V. Dr. O.
48			P.R.S.A. Do. V. Dr. O.			P.R.S.A. Do. V. Dr. O.
50			P.R.S.A. Do. V. Dr. O.			P.R.S.A. Do. V. Dr. O.
52			P.R.S.A. Do. V. Dr. O.			P.R.S.A. Do. V. Dr. O.
54			P.R.S.A. Do. V. Dr. O.			P.R.S.A. Do. V. Dr. O.
56			P.R.S.A. Do. V. Dr. O.			P.R.S.A. Do. V. Dr. O.
58			P.R.S.A. Do. V. Dr. O.			P.R.S.A. Do. V. Dr. O.
60			P.R.S.A. Do. V. Dr. O.			P.R.S.A. Do. V. Dr. O.

※

P. = Patient
R. = Registered Nurse
S. = Student Nurse
A. = Nurse Aid

Do. = Domestic
V. = Visitor
Dr. = Doctor
O. = Other

TABLE 1: THE AGES OF PATIENTS BY SOURCE OF ADMISSION

Age Group in Years	Emergency Patients	Waiting List Patients	All Patients
Under 16 ..	1	-	1
16 and under 45	50	14	64
45 and under 65	11	7	18
65 and over	16	2	18
All patients	78	23	101

FIGURE 3: THE AGES OF PATIENTS BY SOURCE OF ADMISSION

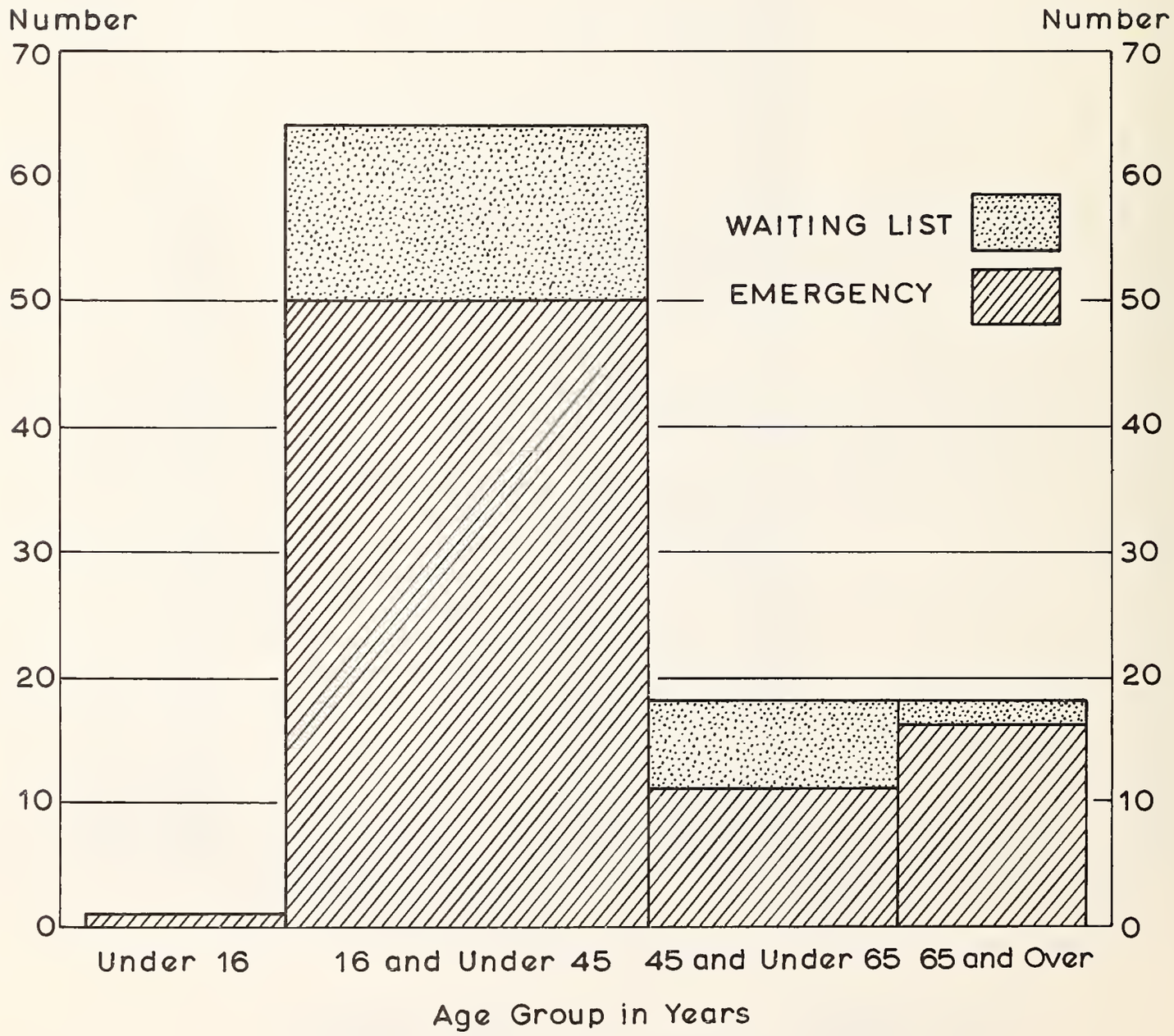


TABLE 2: THE DISEASES OF THE PATIENTS

International Classification	Description	Number of Patients
Y10	Medical and surgical aftercare	3
138.0	Sarcoid of Boeck	1
151	Malignant neoplasm of stomach	3
153.3	Malignant neoplasm of large intestine; sigmoid colon	1
154	Malignant neoplasm of rectum	2
170	Malignant neoplasm of breast	3
175.0	Malignant neoplasm of ovary	1
190	Malignant melanoma of skin	1
214	Uterine fibromyoma	3
216	Benign neoplasm of ovary	4
217	Benign neoplasm of other female genital organs; vagina	1
226	Lipoma	1
251	Non-toxic nodular goitre	1
260	Diabetes Mellitus	1
316	Psychoneurosis with somatic symptoms affecting circulatory system	1
460	Varicose veins of lower extremities	1
550	Acute appendicitis	2
560-3	Hernia of abdominal cavity without mention of obstruction; ventral (incisional)	2
561.4	Hernia of abdominal cavity with obstruction; of other specified site	2
570.5	Intestinal obstruction without mention of hernia; other	3
571.1	Gastro-enteritis and colitis except ulcerative	1
572.0	Chronic enteritis and ulcerative colitis; Regional enteritis	3
573.0	Functional disorders of intestines; constipation	1
574	Anal fissure	1
585	Cholecystitis	4
605	Cystitis	1
630	Infective disease of uterus, vagina and vulva	1
631	Utero-vaginal prolapse	2
632	Malposition of uterus	1
634	Disorders of menstruation	2
635	Menopausal symptoms	2
642.4	Toxaemias of pregnancy; Hypermesis gravidarum	1
648.3	Other complications arising from pregnancy; other	1
650.0	Abortion without sepsis	18
660.5	Delivery without mention of complication; Caesarian section	2
670.5	Delivery complicated by placenta praevia; Caesarian section	3
690	Boil and carbuncle	1
692	Other cellulitis and abcess without mention of lymphangitis	1
723	Osteo-arthritis and allied conditions	1
735	Displacement of intervertebral disc	3
785	Symptoms referable to abdomen and lower gastro-intestinal tract	2
785.5	Abdominal pain	3
N813	Fracture of radius and ulna	1
N820	Fracture of the neck of the femur	3
N847	Sprains and strains of other unspecified parts of back	2
N852	Concussion	1
N856	Head injury of unspecified nature	1
N874	Open wound of neck	1
	Totals	101

TABLE 3: EMERGENCY PATIENTS HAVING SURGERY BY DEPENDENCY AND DATE

Dependency Category	October								November																				All Patients	Mean Number of Patients
	24	25	26	27	28	29	30	31	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20		
1. Ambulant	5	6	6	5	7	5	6	7	6	5	5	4	4	8	7	7	7	3	2	1	5	4	4	5	5	3	5	6	143	5
2. Other	7	6	6	7	7	9	7	8	11	16	13	14	11	7	8	9	8	7	6	10	8	8	8	8	8	10	7	5	239	8
3. Bedfast and Completely Dependent	–	1	2	3	3	2	4	5	1	–	2	1	1	1	2	1	2	3	5	4	3	5	3	2	2	–	–	2	60	2
All Patients	12	13	14	15	17	16	17	20	18	21	20	19	16	16	17	17	17	13	13	15	16	17	15	15	15	13	12	13	442	15

FIGURE 4: EMERGENCY PATIENTS HAVING SURGERY BY DEPENDENCY AND DATE

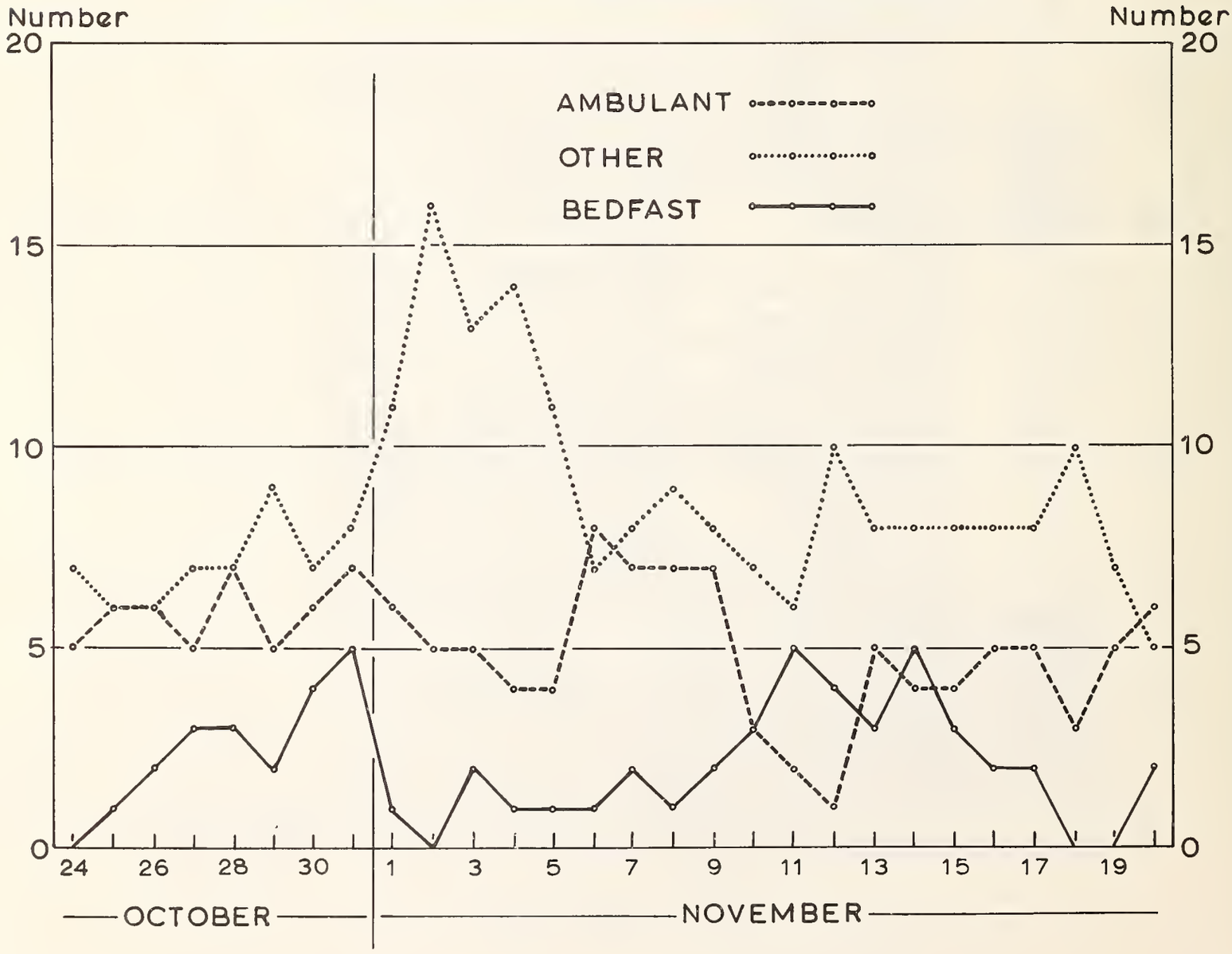


TABLE 4: EMERGENCY PATIENTS NOT HAVING SURGERY BY DEPENDENCY AND DATE

Dependency Category	October								November																				All Patients	Mean Number of Patients
	24	25	26	27	28	29	30	31	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20		
1. Ambulant	–	–	1	–	1	1	2	–	–	–	–	–	2	2	1	1	–	3	3	3	1	–	1	1	1	–	–	1	25	1
2. Other	7	7	7	8	6	6	5	3	4	5	5	5	3	5	6	8	10	8	7	6	6	6	6	5	6	6	6	6	168	6
3. Bedfast and Completely Dependent	2	3	2	1	–	–	–	–	–	–	–	1	1	1	2	–	1	–	–	–	–	1	–	–	1	2	2	1	21	1
All Patients	9	10	10	9	7	7	7	3	4	5	5	6	6	8	9	9	11	11	10	9	7	7	7	6	8	8	8	8	214	8

FIGURE 5: EMERGENCY PATIENTS NOT HAVING SURGERY BY DEPENDENCY AND DATE

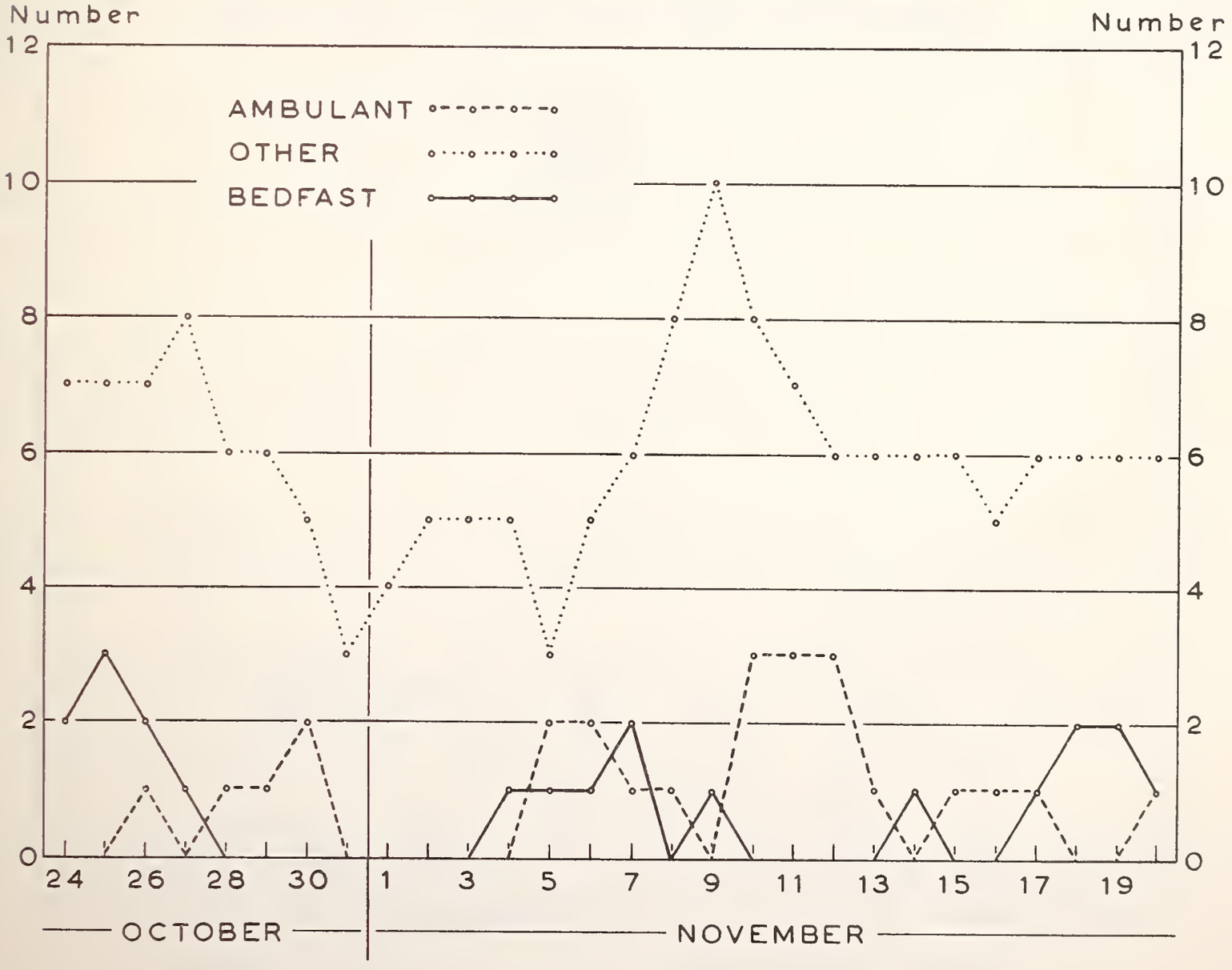


TABLE 5: EMERGENCY PATIENTS BY DEPENDENCY AND DATE

Dependency Category	October								November																				All Patients	Mean Number of Patients
	24	25	26	27	28	29	30	31	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20		
1. Ambulant	5	6	7	5	8	6	8	7	6	5	5	4	6	10	8	8	7	6	5	4	6	4	5	6	6	3	5	7	168	6
2. Other	14	13	13	15	13	15	12	11	15	21	18	19	14	12	14	17	18	15	13	16	14	14	14	13	14	16	13	11	407	14
3. Bedfast and Completely Dependent	2	4	4	4	3	2	4	5	1	–	2	2	2	2	4	1	3	3	5	4	3	6	3	2	3	2	2	3	81	3
All Patients	21	23	24	24	24	23	24	23	22	26	25	25	22	24	26	26	28	24	23	24	23	24	22	21	23	21	20	21	656	23

FIGURE 6: EMERGENCY PATIENTS BY DEPENDENCY AND DATE

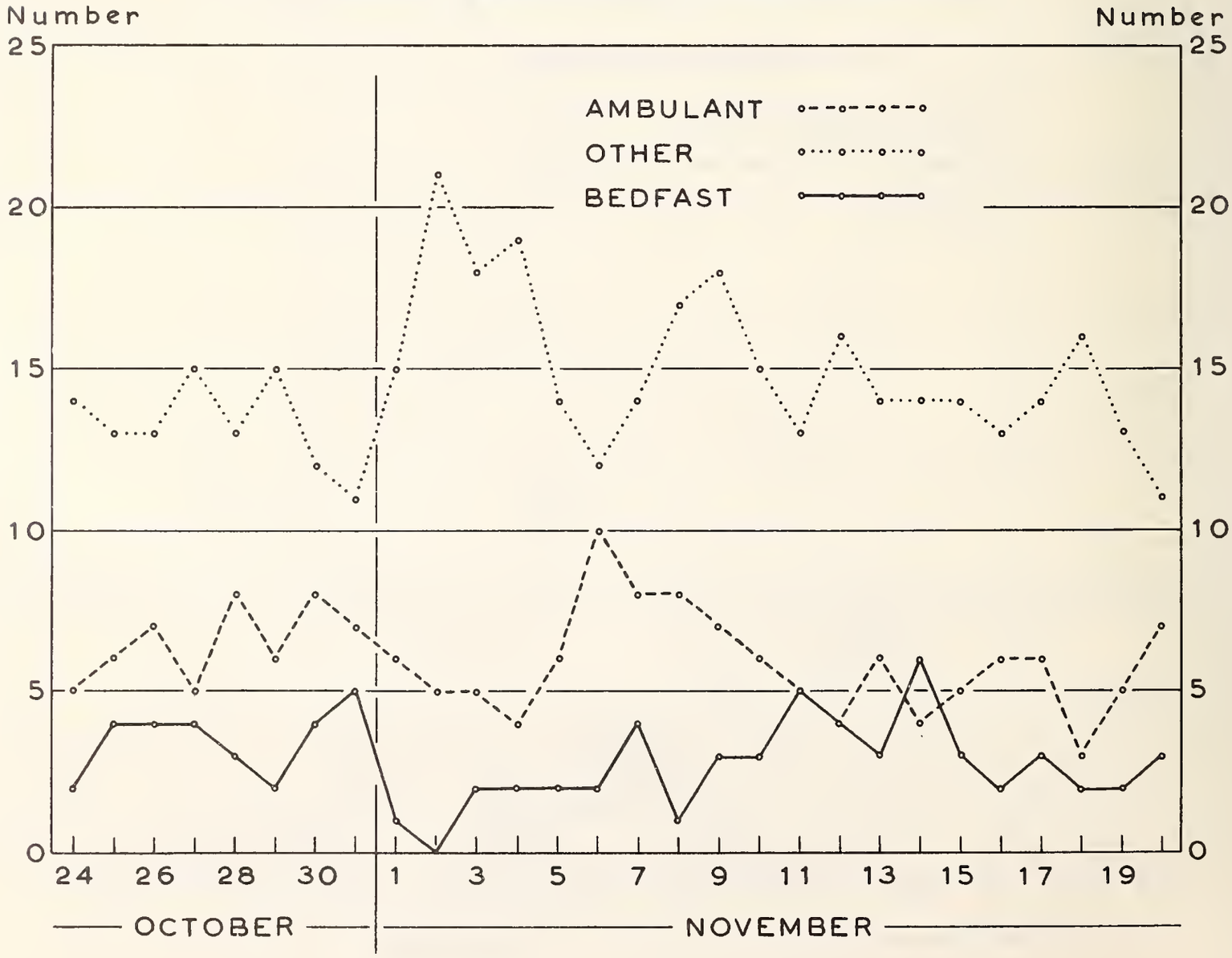


TABLE 6: WAITING LIST PATIENTS HAVING SURGERY BY DEPENDENCY AND DATE

NOTE: The one patient admitted from the waiting list who did not have surgery is also shown in table 6, and figure 7.

Dependency Category	October								November																				All Patients	Mean Number of Patients
	24	25	26	27	28	29	30	31	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20		
1. Ambulant	1	3	3	3	5	4	1	–	2	–	–	5	5	2	2	2	1	2	3	2	1	3	7	3	4	5	4	2	75	3
2. Other	4	3	1	1	1	1	2	3	3	4	5	3	2	1	3	3	2	2	2	2	2	1	–	1	–	2	2	2	58	2
3. Bedfast and Completely Dependent	–	–	1	1	1	1	1	–	–	1	–	–	–	3	1	1	1	–	–	–	–	1	–	2	2	–	–	2	19	1
All Patients	5	6	5	5	7	6	4	3	5	5	5	8	7	6	6	6	4	4	5	4	4	4	7	6	6	7	6	6	152	6

FIGURE 7: WAITING LIST PATIENTS HAVING SURGERY BY DEPENDENCY AND DATE

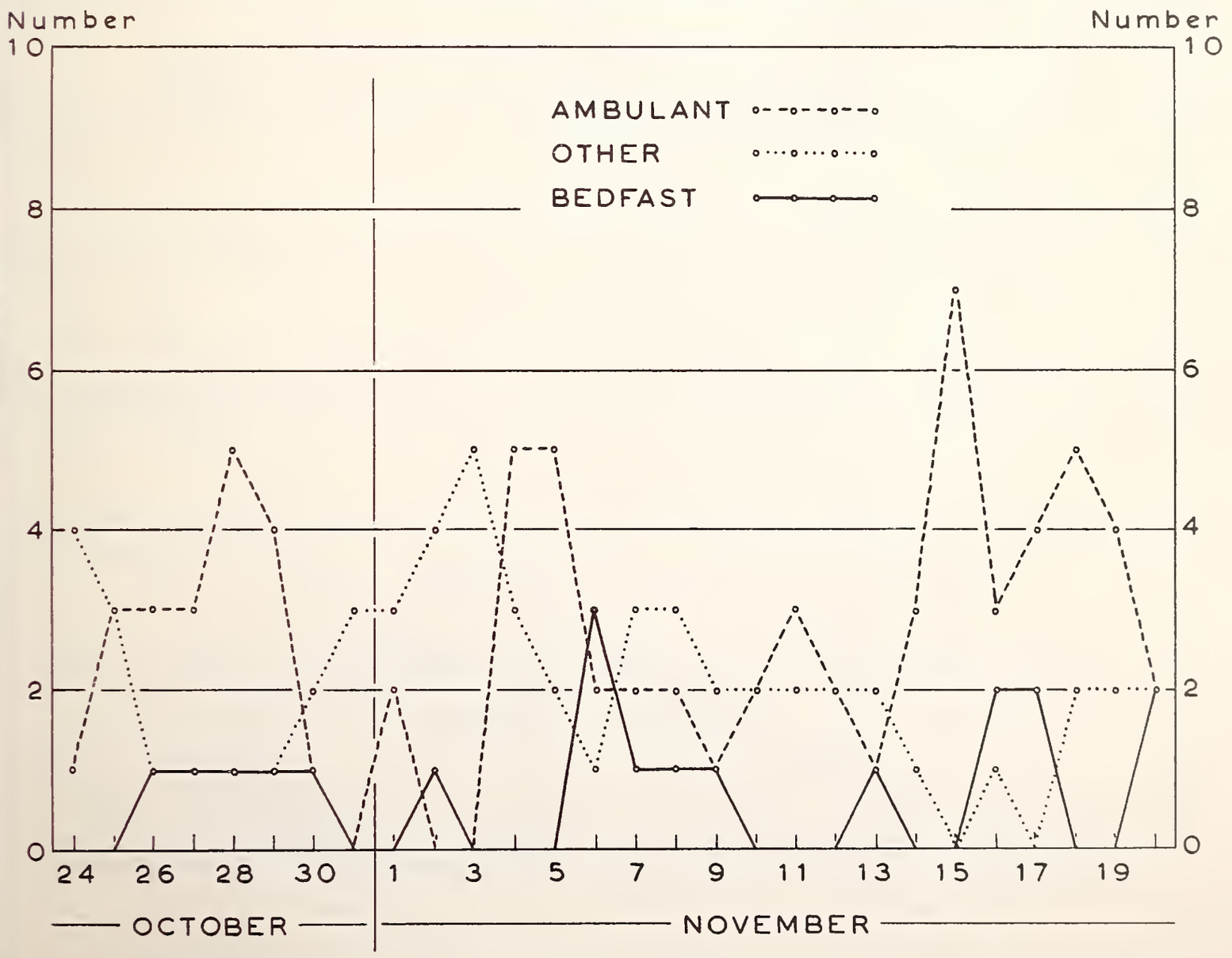


TABLE 7: ALL PATIENTS BY DEPENDENCY AND DATE

Dependency Category	October								November																				All Patients	Mean Number of Patients
	24	25	26	27	28	29	30	31	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20		
1. Ambulant	6	9	10	8	13	10	9	7	8	5	5	9	11	12	10	10	8	8	8	6	7	7	12	9	10	8	9	9	243	9
2. Other	18	16	14	16	14	16	14	14	18	25	23	22	16	13	17	20	20	17	15	18	16	15	14	14	14	18	15	13	465	16
3. Bedfast and Completely Dependent	2	4	5	5	4	3	5	5	1	1	2	2	2	5	5	2	4	3	5	4	4	6	3	4	5	2	2	5	100	4
All Patients	26	29	29	29	31	29	28	26	27	31	30	33	29	30	32	32	32	28	28	28	27	28	29	27	29	28	26	27	808	29

FIGURE 8: ALL PATIENTS BY DEPENDENCY AND DATE

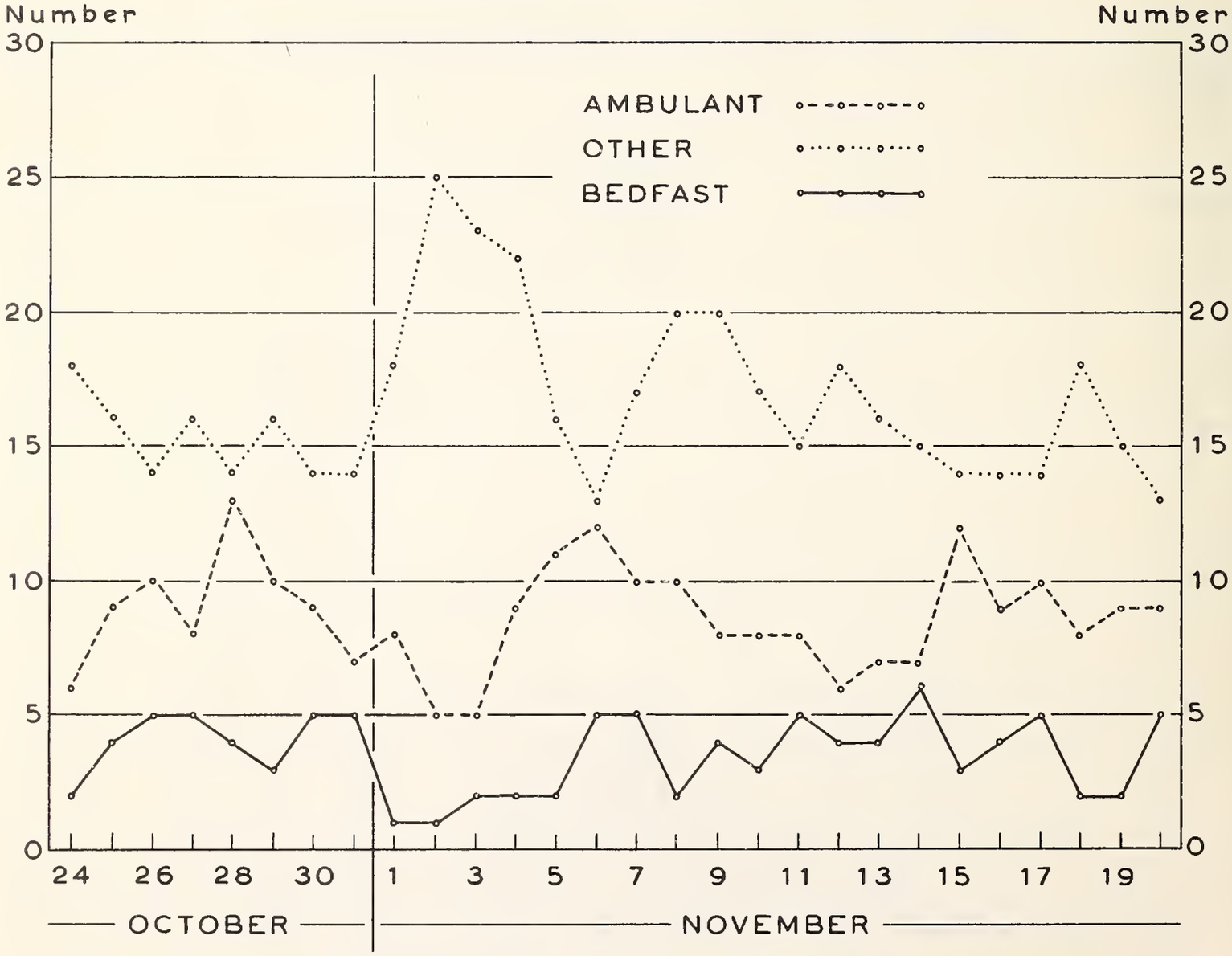


TABLE 8: PATIENTS HAVING SURGERY BY SOURCE, DEPENDENCY AND DAY REFERRED TO DAY OF OPERATION

Patients		Pre-operation Day										Opera-tion	Post Operation Day															All Days
Source	Category	10	9	8	7	6	5	4	3	2	1		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	
Emergency	1	–	1	1	–	–	–	1	2	2	5	3	8	11	6	5	6	7	7	6	3	2	3	3	2	2	2	1	89
	2	–	–	1	2	2	2	3	5	6	15	18	19	16	12	9	7	7	7	4	4	4	1	–	–	–	–	–	144
	3	1	–	–	–	–	–	–	–	5	18	17	8	5	5	5	4	2	1	1	1	1	1	–	–	–	–	–	75
Waiting List	1	–	–	–	–	–	–	–	–	9	15	–	3	4	1	1	1	1	3	3	3	4	4	3	–	–	–	–	55
	2	–	–	–	–	–	–	–	–	–	–	4	7	6	5	6	5	5	2	1	1	–	–	–	–	–	–	–	42
	3	–	–	–	–	–	–	–	–	–	1	12	3	2	2	–	–	–	–	–	–	–	–	–	–	–	–	–	20
All	1	–	1	1	–	–	–	1	2	11	20	3	11	15	7	6	7	8	10	9	6	6	7	6	2	2	2	1	144
	2	–	–	1	2	2	2	3	5	6	15	22	26	22	17	15	12	12	9	5	5	4	1	–	–	–	–	–	186
	3	1	–	–	–	–	–	–	–	5	19	29	11	7	7	5	4	2	1	1	1	1	1	–	–	–	–	–	95

TABLE 9: MINUTES OF BEDSIDE NURSING CARE GIVEN BY NURSES BY DEPENDENCY CATEGORY, KIND OF NURSE AND HOUR

Hour	Category															
	1. Ambulant				2. Other				3. Bedfast and Completely Dependent				All Categories			
	Registered Nurse	Student Nurse	Nurse Aid	Total Nurses	Registered Nurse	Student Nurse	Nurse Aid	Total Nurses	Registered Nurse	Student Nurse	Nurse Aid	Total Nurses	Registered Nurse	Student Nurse	Nurse Aid	Total Nurses
7a.m. – 8a.m.	–	–	–	–	–	9	–	9	–	4	–	4	–	13	–	13
8 – 9	–	1	–	1	1	3	1	5	–	12	–	12	1	16	1	18
9 – 10	2	1	–	3	6	6	–	12	6	–	–	6	14	7	–	21
10 – 11	–	–	1	1	2	7	–	9	–*	–*	–*	–*	2*	7*	1*	10*
11 – 12	1	–	–	1	2	7	–	9	4	6	–	10	7	13	–	20
12 – 1p.m.	1	–	–	1	2	–	–	2	8	16	–	24	11	16	–	27
1p.m. – 2	–	–	–	–	–	2	–	2	1	2	4	7	1	4	4	9
2 – 3	–	–	–	–	2	2	1	5	–	2	6	8	2	4	7	13
3 – 4	–	–	–	–	–	9	–	9	–	16	–	16	–	25	–	25
4 – 5	1	–	–	1	–	4	–	4	–	2	–	2	1	6	–	7
5 – 6	–	2	–	2	–	1	–	1	–	6	–	6	–	9	–	9
6 – 7	–	–	–	–	–	4	–	4	–	12	–	12	–	16	–	16
7 – 8	–	1	–	1	–	1	–	1	–	2	–	2	–	4	–	4
8 – 9p.m.	–	–	–	–	5	–	–	5	6	6	–	12	11	6	–	17
Totals	5	5	1	11	20	55	2	77	25	86	10	121	50	146	13	209

* No figures available for category 3.

TABLE 10: AVERAGE WARD DAILY BEDSIDE NURSING TIME BY DEPENDENCY

Patients		Bedside Nursing Time		
Dependency Category	Daily Average	Average Minutes	Total Hours	Per Cent of Total Time
1. Ambulant ..	9	11	1.7	5.2
2. Other ..	17	77	21.8	69.2
3. Bedfast and Completely Dependent ..	4	121	8.1	25.6
All Patients	30	63	31.6	100

FIGURE 9: ALL PATIENTS HAVING SURGERY BY DEPENDENCY CATEGORY AND DAY REFERRED TO DAY OF OPERATION

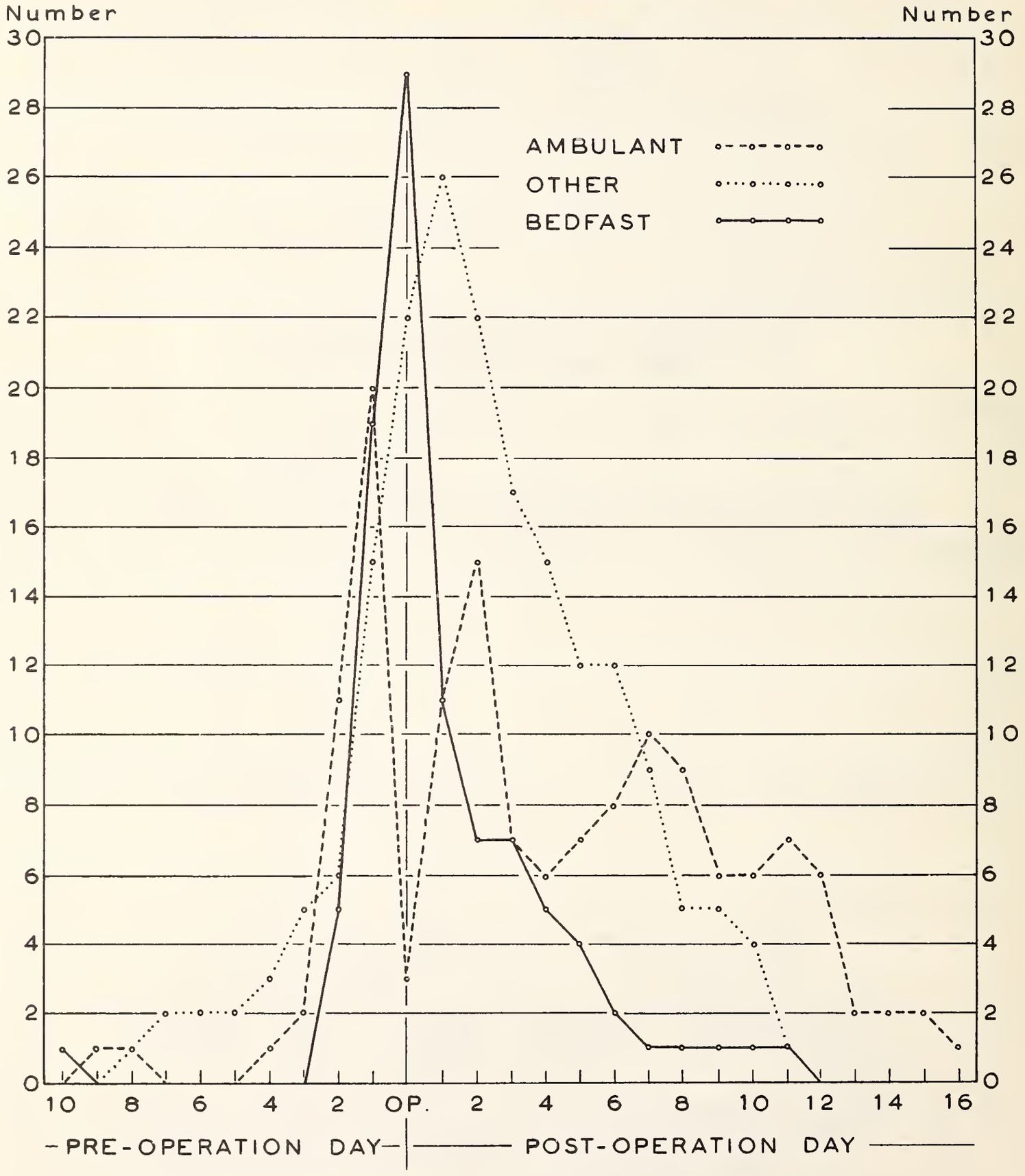


FIGURE 10: HISTOGRAM SHOWING NUMBERS OF PATIENTS IN THE THREE DEPENDENCIES IN EACH DAY REFERRED TO THE DAY OF OPERATION

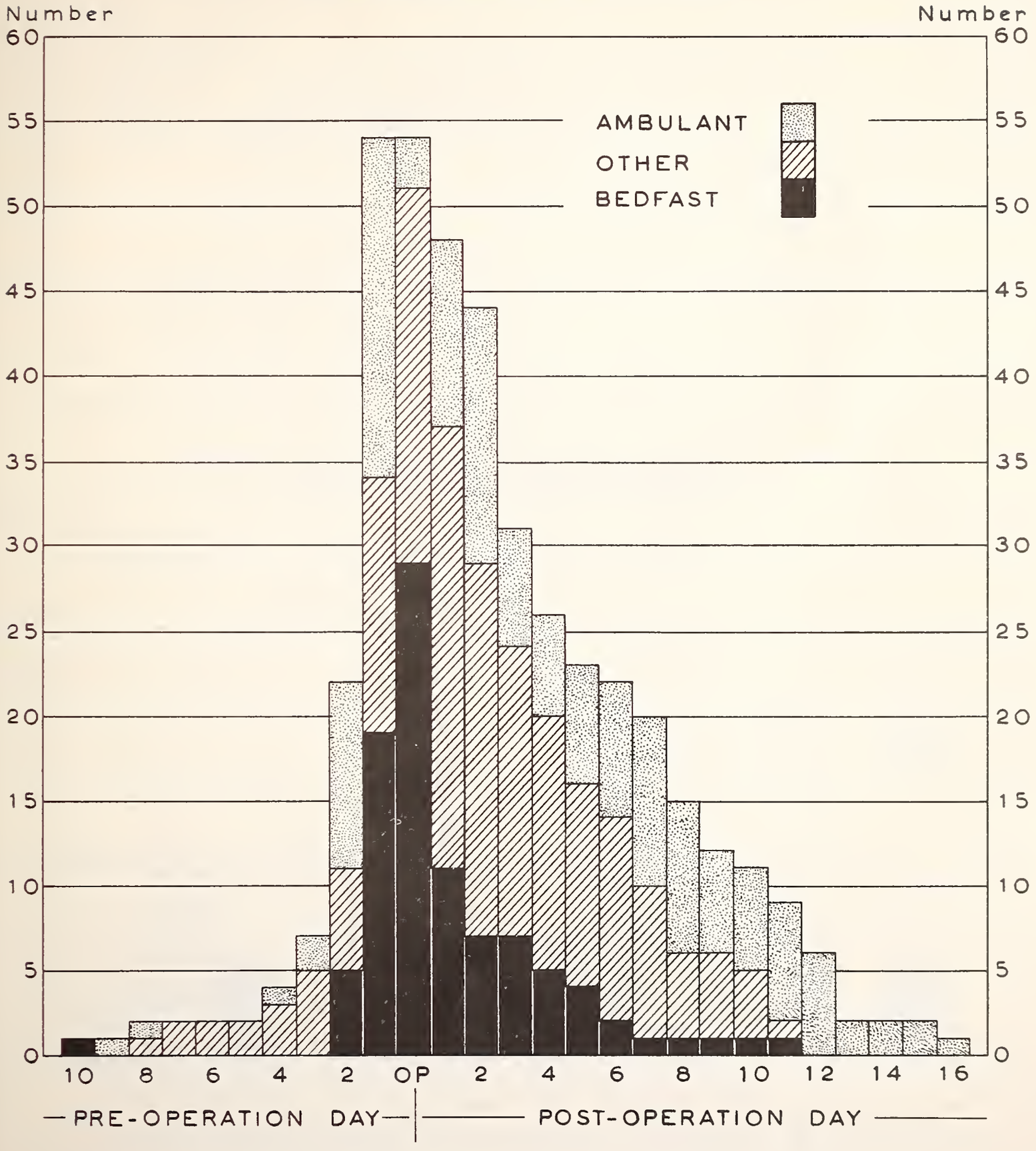


FIGURE 11: MINUTES OF BEDSIDE NURSING CARE GIVEN BY NURSES TO DEPENDENCY CATEGORY 1 PATIENTS BY KIND OF NURSE AND HOUR

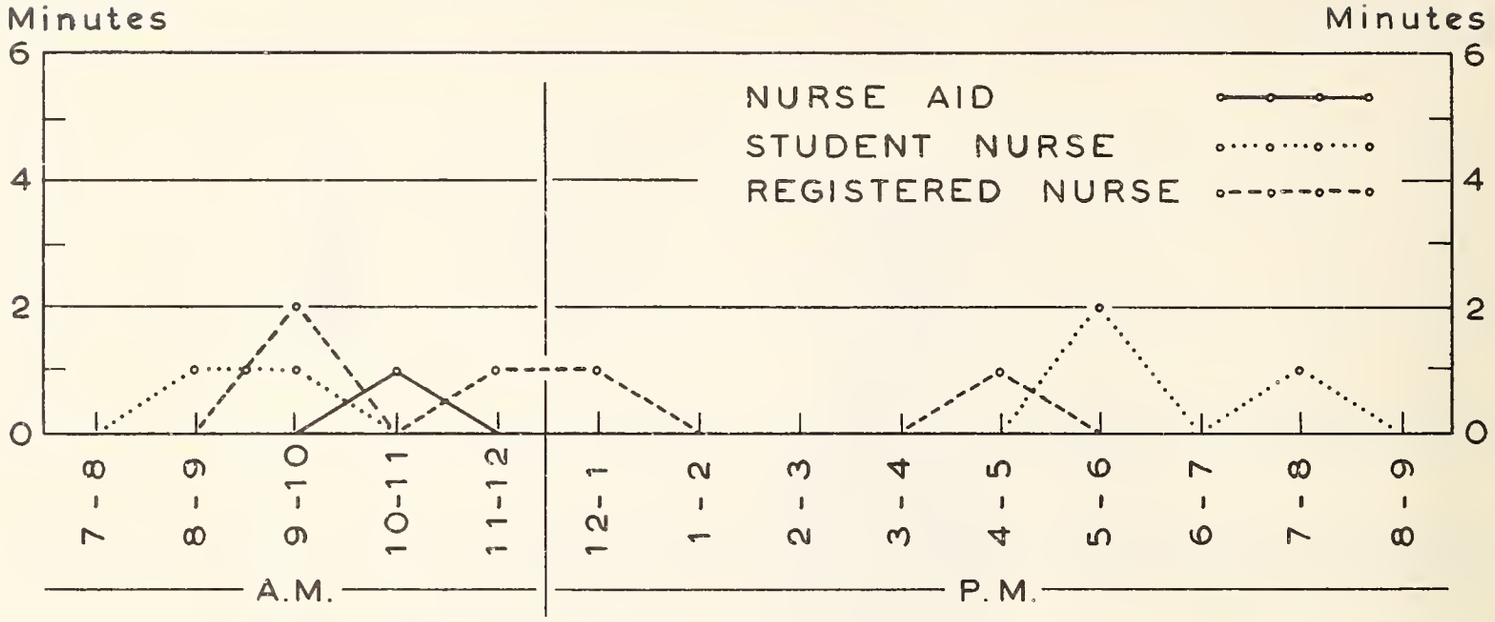


FIGURE 12: MINUTES OF BEDSIDE NURSING CARE GIVEN BY NURSES TO DEPENDENCY CATEGORY 2 PATIENTS BY KIND OF NURSE AND HOUR

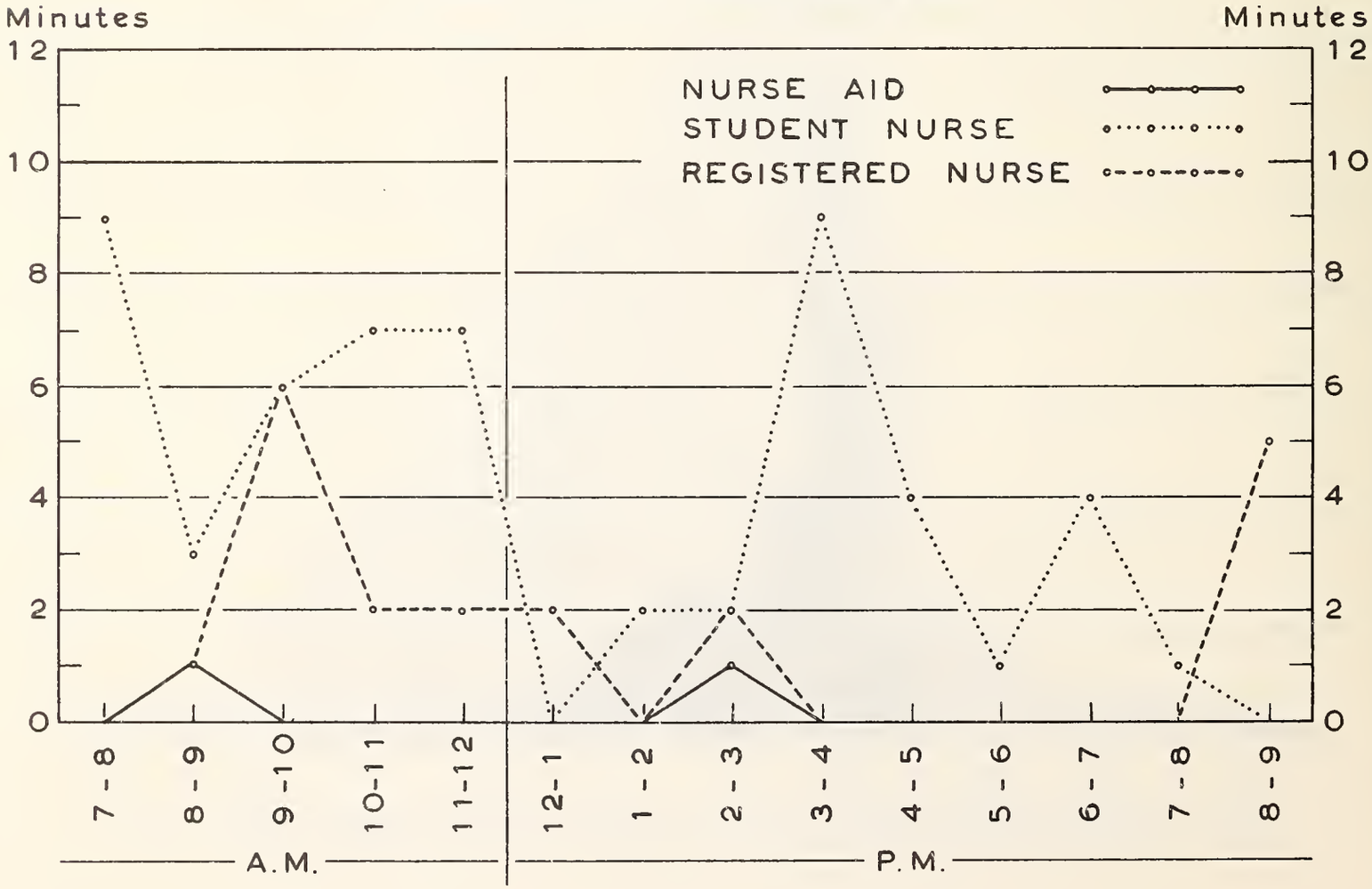
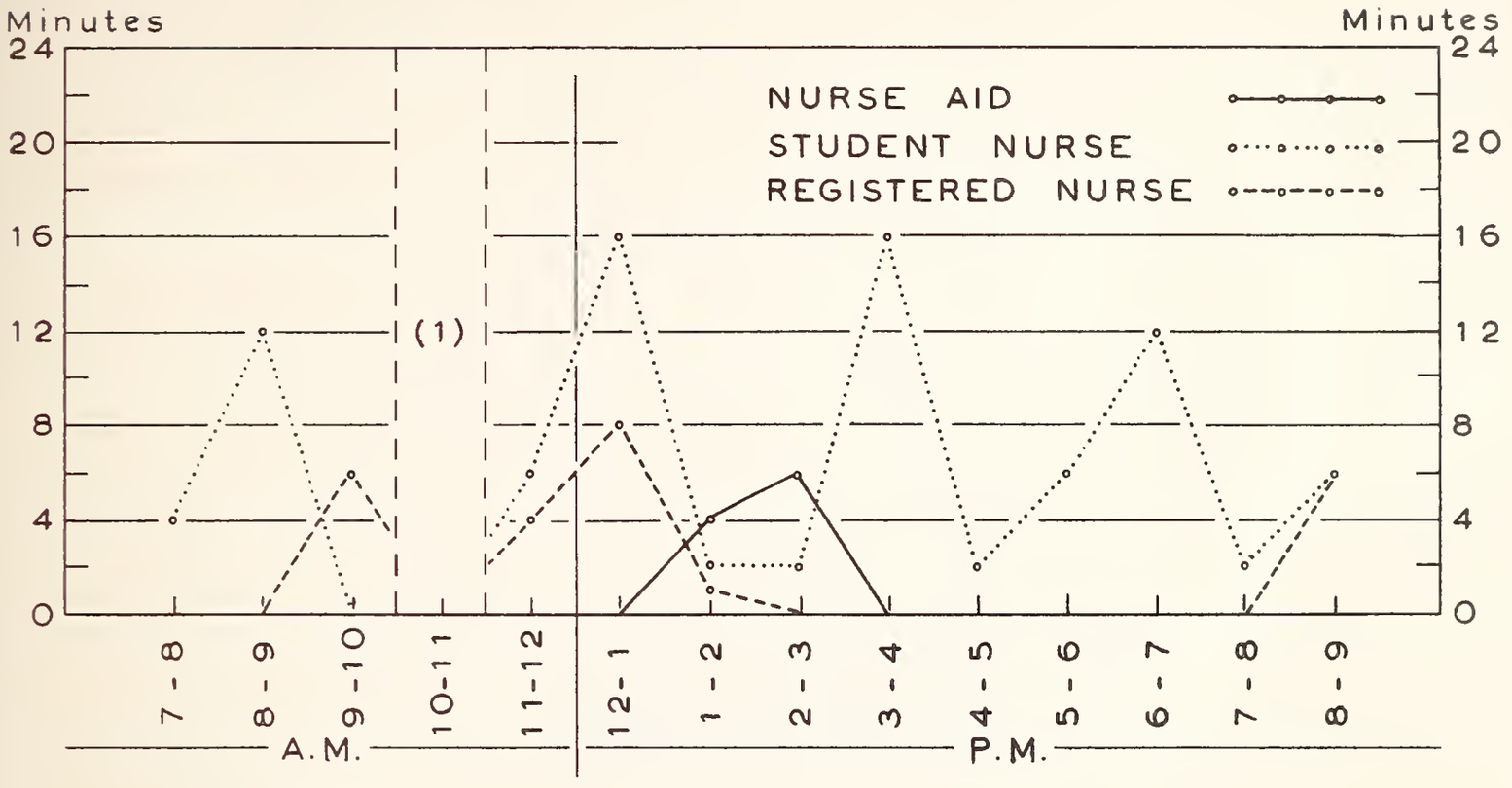
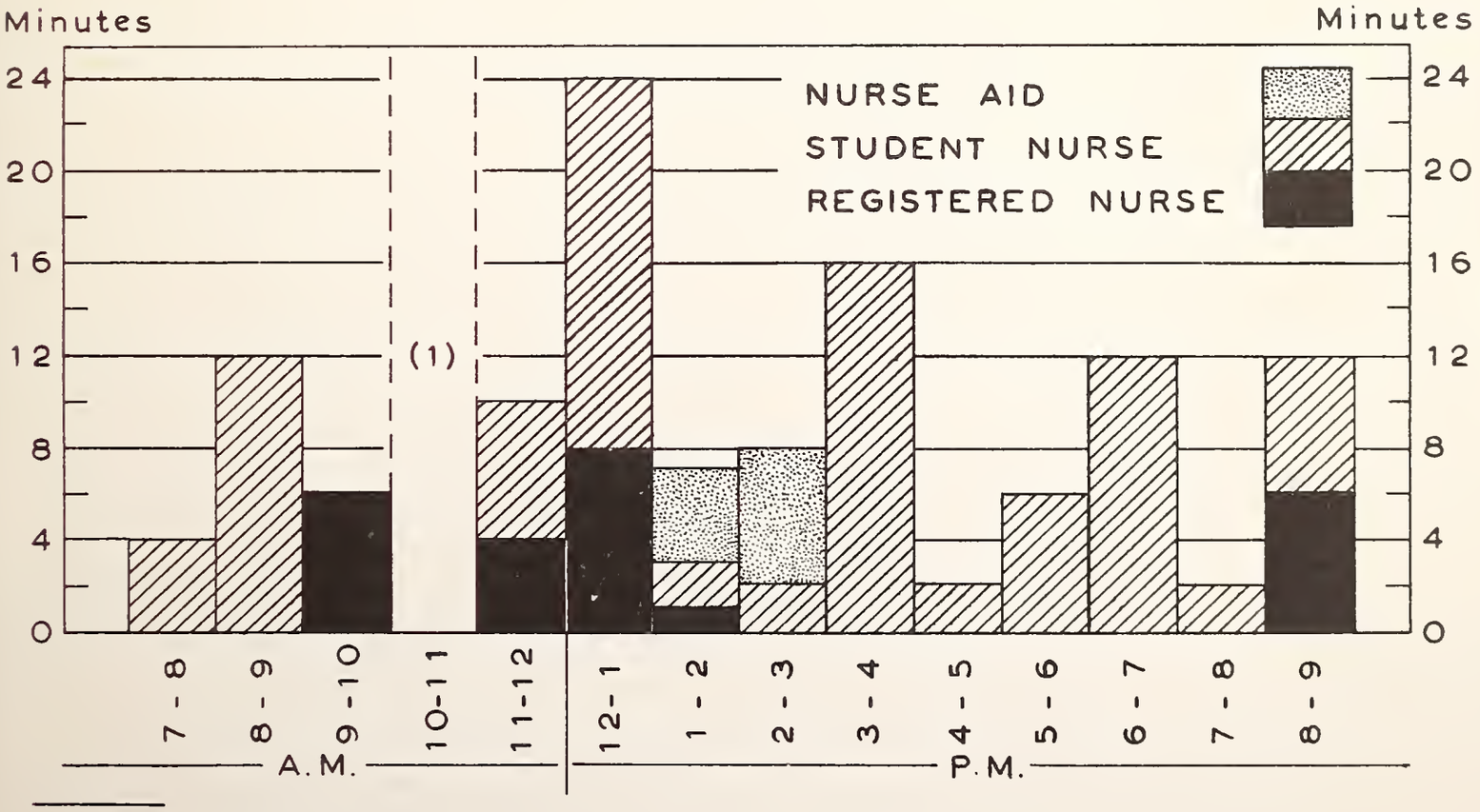


FIGURE 13: MINUTES OF BEDSIDE NURSING CARE GIVEN BY NURSES TO DEPENDENCY CATEGORY 3 PATIENTS BY KIND OF NURSE AND HOUR





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